

REMARKS

Upon entry of this Amendment, claims 1 and 4-25 will be pending in this application. Claims 10-13 have been withdrawn from consideration. Claims 21-25 have been added. Reconsideration and allowance in view of the foregoing amendments and following remarks are respectfully requested.

Claim Rejections – 35 U.S.C. § 103

Claims 1, 6-7, 14, and 17-18 are rejected under 35 U.S.C. § 103 (a) as being unpatentable over Tomoyasu *et al.* (US Pat. No. 5,900,103). Applicants respectfully traverse this rejection for at least the following reasons.

The Examiner contends that Tomoyasu *et al.* shows the invention as claimed including a gas-evacuating arrangement 750A connected to the gas-introducing part so as to evacuate the reactant gas from the gas-introducing part. The Examiner concedes that Tomoyasu *et al.* lacks anticipation of wherein said gas-evacuating arrangement comprises a second vacuum pump connected to said gas introducing part, and wherein said gas-evacuating arrangement comprises a bypass passage which connects said gas-introducing part to said first vacuum pump by bypassing said process chamber. The Examiner contends, however, that in view of Tomoyasu *et al.* it would have been obvious to one of ordinary skill in the art to either have a second pump to evacuate the gas-introducing part in order to allow for separate controllability to evacuate either the process chamber or the gas introducing part at desired times, or to connect the gas-introducing part via a bypass to the first vacuum pump so as to reduce the overall size and complexity of the apparatus of Tomoyasu *et al.*

In response to the arguments filed November 5, 2002, the Examiner contends that the arguments are not persuasive. Although, the Examiner agrees that a burner is used in Tomoyasu *et al.* reference, the Examiner contends that it would have been well within the understanding of one of ordinary skill in the art to use a vacuum pump to remove gas through outlet 750A in Figure 37 because Tomoyasu *et al.* uses exhaust pump 45 to exhaust gas through outlet 41. Applicants respectfully disagree.

The mere disclosure in Tomoyasu *et al.* that an exhaust pump 45 is used to exhaust gas through outlet 41 is not sufficient to suggest that a second vacuum pump can be used to evacuate the reactant gas from the gas-introducing part. In fact, Tomoyasu *et al.* teaches away from using a vacuum pump by expressly teaching removing gas components via bypass 750 with the use of a clean-up unit having a gas burner (see, col. 17, line 17, lines 54-57 in

Tomoyasu *et al.*). Therefore, one of ordinary skill in the art would not have been motivated to provide a second vacuum pump connected to the gas-introducing part to evacuate the reactant gas from the gas-introducing part, as recited in claim 1 or to provide a bypass passage to connect the gas-introducing part via the bypass passage to the first pump, as recited in claim 14.

Consequently, Tomoyasu *et al.* does not disclose, teach or suggest, *inter-alia*, "a second vacuum pump connected to said gas-introducing part so as to evacuate the reactant gas from said gas-introducing part," as recited in claim 1 or "a gas-evacuating arrangement comprises a bypass passage which connects said gas-introducing part to said first vacuum pump by bypassing said process chamber," as recited in claim 14.

Therefore, Applicants respectfully submit that claims 1 and 14, and claims 6, 7, 17 and 18 which are dependent from either claim 1 or claim 14 are patentable and respectfully request that the rejection of claims 1, 6-7, 14, and 17-18 under § 103(a) be withdrawn.

Claims 4-5 and 15-16 are rejected under 35 U.S.C. § 103 (a) as being unpatentable over Tomoyasu *et al.* (US Pat. No. 5,900,103) in view of Li *et al.* (US Pat. No. 5,772,771). Applicants respectfully traverse this rejection for at least the following reasons.

The Examiner admits that Tomoyasu *et al.* lacks anticipation of wherein said gas-introducing part has a plurality of circumferentially arranged nozzles through which the gas is introduced. The Examiner further concedes that Tomoyasu *et al.* is silent about the gas-introducing part comprising at least one inlet port from which the reactant gas is supplied, an annular gas passage connected to said inlet port so that the reactant gas supplied from the inlet port is supplied to said plurality of nozzles by flowing through said annular gas passage, and an outlet port provided to said annular gas passage so that said gas-evacuating arrangement is connected thereto. The Examiner contends however, Li *et al.* discloses a gas-introducing part in a sidewall of the chamber having a plurality of circumferentially arranged nozzles 34 and at least one inlet port 80 from which the reactant gas is supplied, an annular gas passage 36 connected to the inlet port so that the reactant gas is supplied to the plurality of nozzles 34 by flowing through said annular passage, and an outlet port 82 provided to the annular gas passage so that the gas-evacuating arrangement is connected thereto. The Examiner contends that it would have been obvious to one of ordinary skill in the art to modify Tomoyasu *et al.* so as to include the gas-introducing part of Li *et al.* Applicants respectfully disagree.

Claims 4, 5, 15 and 16 depend from either claim 1 or claim 14, therefore for at least the above reasons presented for claims 1 and 14, Tomoyasu *et al.* does not disclose, teach or suggest the subject matter recited in claims 4, 5, 15 and 16. Furthermore, Li *et al.* does not overcome the deficiencies of Tomoyasu *et al.* Specifically, Li *et al.* does not disclose, teach or suggest "a second vacuum pump connected to said gas-introducing part so as to evacuate the reactant gas from said gas-introducing part," or "a gas-evacuating arrangement comprises a bypass passage which connects said gas-introducing part to said first vacuum pump by bypassing said process chamber."

Moreover, contrary to Examiner's contention, Li *et al.* does not disclose, teach or suggest "an outlet port provided to said annular gas passage so that said gas-evacuating arrangement is connected thereto," as recited in claims 5 and 16. Specifically, Li *et al.* merely provides a cleaning gas line 82 "outlet port" which is connected to common gas feed line 80. In Li *et al.*, the "outlet port" 82 is not provided to "annular gas passage" 36.

Consequently, Applicants respectfully submit that claims 4, 5, 15 and 16 are patentable and respectfully request that the rejection of claims 4, 5, 15 and 16 under § 103(a) be withdrawn.

Claims 1, 6-9, and 17-20 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Tei *et al.* (2002/0011215 A1) in view of Tomoyasu *et al.* (US Pat. No. 5,900,103). Applicants respectfully traverse this rejection for at least the following reasons.

The Examiner contends that Tei *et al.* shows the invention as claimed including a plasma processing apparatus for applying a plasma process to an object to be processed, the plasma processing apparatus including a first vacuum pump connected to said process chamber through exhaust 102. The Examiner concedes that Tei *et al.* fails to disclose a gas-evacuating arrangement connected to said gas-introducing part so as to evacuate the reactant gas from said gas-introducing part. The gas-evacuating arrangement comprising a second vacuum pump connected to said gas-introducing part, or a gas-evacuating arrangement comprising a bypass passage which connects the gas-introducing part to said first vacuum pump by bypassing said process chamber. The Examiner states, however, that Tomoyasu *et al.* discloses a gas evacuating arrangement (750A) connected to a gas-introducing part so as to evacuate the gas from the gas-introducing part. Applicants respectfully disagree.

Tomoyasu *et al.* is silent about providing a second vacuum pump connected to the gas-introducing part so as to evacuate the reactant gas from the gas-introducing part. In

addition as admitted in the Office Action, Tomoyasu *et al.* lacks anticipation of wherein said gas-evacuating arrangement comprises a second vacuum pump connected to said gas-introducing part or wherein said gas-evacuating arrangement comprises a bypass passage which connects said gas-introducing part to said first vacuum pump by bypassing said process chamber. Therefore, neither Tei *et al.* nor Tomoyasu *et al.* disclose, teach or suggest alone or in combination, *inter-alia*, "a second vacuum pump connected to said gas-introducing part so as to evacuate the reactant gas from said gas-introducing part," as recited in claim 1 or "a gas-evacuating arrangement comprises a bypass passage which connects said gas-introducing part to said first vacuum pump by bypassing said process chamber," as recited in claims 17-20.

Therefore, Applicants respectfully submit that claim 1 and claims 6-9 which are dependent therefrom, and claims 17-20 are patentable and respectfully request that the rejection of claims 1, 6-9, and 17-20 under § 103(a) be withdrawn.

Claims 21-25 are newly added. Support for the claim language may be found throughout the specification. For example, support for "a gas-injecting part connected to said process chamber so as to inject a discharge gas into said process chamber; and a second gas-evacuating arrangement connected to said gas-injecting part so as to evacuate the discharge gas from said gas-injecting part," can be found in pages 18-21 of the specification.

Claims 21-25 are dependent indirectly from claim 1. Therefore, for at least the reasons presented above for claim 1, claims 21-25 are patentable.

CONCLUSION

In view of the foregoing, the claims are now in form for allowance, and such action is hereby solicited. If any point remains in issue which the Examiner feels may be best resolved through a personal or telephone interview, he is kindly requested to contact the undersigned at the telephone number listed below.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached Appendix is captioned "Version with markings to show changes made".

All objections and rejections having been addressed, it is respectfully submitted that the present application is in a condition for allowance and a Notice to that effect is earnestly solicited.

Respectfully submitted,
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Enclosure: Appendix

APPENDIX

version with markings to show changes made

IN THE CLAIMS

Claim 16 has been amended as follows:

16. (Amended) The plasma processing apparatus as claimed in claim 15, wherein said gas-introducing part comprises:

at least one inlet port from which the reactant gas is supplied;

an annular gas passage connected to said inlet port so that the reactant gas supplied from the inlet port is supplied to said plurality of nozzles by flowing through said annular gas passage; and

an outlet port provided to said annular gas passage [to] so that said gas-evacuating arrangement is connected thereto.

Claims 21-25 have been added.

End of Appendix